

**Firefighter II, Mod A**  
**Self Contained Breathing Apparatus**

# **FIREFIGHTER II MOD A**

## **Self Contained Breathing Apparatus**

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- 2-4 SELF-CONTAINED BREATHING APPARATUS**
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  - 2-4.2** Identify the physical requirements of a SCBA user. (3-3.1)
  - 2-4.3** Identify the uses and limitations of SCBA. (3-3.1)
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    - 2-4.12.2** **Doff SCBA according to manufacturer's recommendations**
  - 2-4.13** **Demonstrate that the SCBA is in a safe condition for immediate use. (3-1.1.2, 3-3.1(b))**
  - 2-4.14** **Demonstrate and document the cleaning and sanitizing of SCBA components. (3-5.3(b))**
  - 2-4.15** **Demonstrate the daily inspection procedures for the main components of SCBA according to the manufacturer's recommendations. (3-5.3(b))**

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- 2-4.16 Demonstrate the proper procedure for recharging air cylinders used by the fire department according to manufacturer's recommendations. (3-5.3(b))**
- 2-4.17 Demonstrate the use of all types of SCBA used by the fire department in conditions of obscured visibility. (3-3.1(b), 3-3.4(b))**
- 2-4.18 Demonstrate the following emergency procedures to be used in the event of SCBA failure: (3-3.1(b), 3-3.4(b))**
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- 2-4.20 Demonstrate air cylinder exchange while SCBA is being worn by a firefighter according to procedures discussed in class. (3-3.1(b), 3-3.4(b))**
- 2-4.21 Demonstrate air cylinder exchange while SCBA is NOT being worn by a firefighter according to procedures discussed in class. (3-3.1(b), 3-3.4(b))**
- 2-4.22 Demonstrate rescue procedures for the following without compromising the rescuer's respiratory protection: (3-3.1(b), 3-3.4(b), 3-3.8(b))**
  - 2-4.22.1 A firefighter with functioning respiratory protection**
  - 2-4.22.2 A firefighter without functioning respiratory protection**
  - 2-4.22.3 A civilian without respiratory protection**
- 2-4.23 Demonstrate the use of SCBA in exiting through areas with restricted openings in emergency situations. (3-3.1(b), 3-3.9(b), 3-3.10(b))**

**REFERENCES:**

IFSTA, Essentials, 4<sup>th</sup> ed., Chapter 4

Delmar, Firefighter's Handbook, copyright 2000, Chapter 7

Jones & Bartlett, Fundamentals of Firefighter Skills, Chapters 2 & 17

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**2-4 Self Contained Breathing Apparatus**

**I. Identify the hazardous environments requiring the use of respiratory protection. 2-4.1 (3-3.1)**

**A. Oxygen deficiency**

1. Combustion process consumes oxygen
2. Production of toxic gases may displace oxygen
3. Oxygen concentration diluted by other gases during combustion process
4. Physiological effects of reduced oxygen (hypoxia)
  - a. 21% oxygen in air
    1. Normal
  - b. 17% oxygen in air
    1. Some muscular impairment
    2. Increase in respiratory rate
  - c. 12 % oxygen in air
    1. Dizziness, headache, rapid fatigue
  - d. 9% oxygen in air
    1. Unconsciousness
  - e. 6% or less oxygen in air
    1. Death occurs in minutes from respiratory failure and concurrent heart failure.

**B. Elevated temperatures**

1. Heated air can damage respiratory tract
  - a. Excessive heat (120-130 degrees)
    1. Blood pressure drop
    2. Circulatory failure

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- b. Inhalation of heated gases
  - 1. Pulmonary edema
  - 2. Death from asphyxiation
- c. Respiratory tissue injury is not immediately reversible with the introduction of fresh, cool air

**C. Smoke**

- 1. Smoke is a suspension of fine particles
  - a. Tar
  - b. Carbon
  - c. Dust
- 2. Provides a means for the condensation of some of the gaseous products of combustion
  - a. Aldehydes
  - b. Organic acids
- 3. Some of these particles are lethal; some are irritating.
- 4. Size of particle determines how deeply they will penetrate into the lung.

**D. Toxic gases**

- 1. During fires, a firefighter will be exposed to combinations of irritants and toxicants.
  - a. Each fire will present differing products of combustion
  - b. Combinations may have a synergistic effect
- 2. Harmful effects of inhaled toxic gases
  - a. Disease of the lung tissue
  - b. Impair the oxygen carrying capacity of red blood cells
- 3. Type of toxic gases given off dependent upon:
  - a. Nature of the combustion
  - b. Rate of heating
  - c. Temperature of involved gases
  - d. Oxygen concentration at time of combustion

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4. Commonly found fire gases
  - a. Carbon monoxide (CO)
    1. More fire deaths occur from exposure to carbon monoxide than any other product of combustion.
    2. Colorless
    3. Odorless
    4. Present at every fire
    5. Results from incomplete combustion
    6. Carbon monoxide combines with the blood's hemoglobin about 200 times more readily than oxygen causing oxygen to be excluded and eventually hypoxia will result.
    7. Concentrations of carbon monoxide above five hundredths of one percent (0.05%) (500 PPM) can be dangerous.
    8. Symptoms include:
      - a) Headache
      - b) Dizziness
      - c) Nausea
      - d) Vomiting
      - e) Cherry-red skin coloration
    9. Administering pure oxygen is the most important element in first aid care.
    10. Brain injuries may appear up to three weeks after a severe exposure.
  - b. Hydrogen chloride
    1. Colorless gas
    2. Pungent odor
    3. Causes swelling of upper respiratory tract
      - a) Labored breathing
      - b) Suffocation can result
    4. Due to the increased use of plastics, PVC is commonly found at fires.
      - a) Polyvinyl chloride

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5. Overhaul stage is especially dangerous
  - a) Latent heat can still decompose plastics
  - b) Electrical cables may continue to decompose after fire is extinguished.
- c. Hydrogen cyanide
  1. Interferes with respiration at the cellular and tissue level.
  2. Classified as a chemical asphyxiate
  3. Colorless gas
  4. Noticeable almond odor
  5. Materials that emit hydrogen cyanide include:
    - a) Wool
    - b) Nylon
    - c) Polyurethane foam
    - d) Rubber
    - e) Paper
  6. Concentrations above 270 PPM are almost immediately fatal
- d. Carbon dioxide
  1. Non-flammable
  2. Colorless
  3. Odorless
  4. Concentrations of greater than 10%-12% cause death within a few minutes from paralysis of the brain's respiratory center.
  5. Use caution when working around a total Carbon Dioxide (CO<sub>2</sub>) total flooding system.
- e. Nitrogen oxides
  1. Two dangerous nitrogen oxides are:
    - a) Nitrogen dioxide
    - b) Nitric oxide

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2. Nitrogen dioxide, a pulmonary irritant, is:
  - a) Reddish brown in color
  - b) Commonly called silo gas
  - c) Released from pyroxylin plastics
3. Causes pulmonary edema
4. Reacts with water and oxygen to form nitric and nitrous acids
5. Causes arterial dilation, variation in blood pressure, dizziness, and headaches
6. Irritating effects can be tolerated while a lethal dose is being inhaled

f. Phosgene

1. Colorless, tasteless gas
2. Disagreeable odor
3. Produced when Freon comes into contact with flame
4. When in contact with water, it decomposes into hydrochloric acid

II. Identify the physical requirements of the SCBA user. **2-4.2 (3-3.1)**

A. Physical

1. Sound physical condition
2. Maximize amount of work that can be performed
3. Maximize available air supply

B. Agility

1. Must be agile as the unit will restrict wearer's movements
2. Will affect balance

C. Facial features

1. Need good facepiece seal
2. Presence of facial hair may not permit a proper facepiece seal, including as little as a 24-hour growth



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D. Medical

1. Good motor coordination needed
2. Must have good physical strength and size
3. Good cardiovascular system
4. Healthy respiratory system

E. Mental

1. Adequate training in use of equipment
2. Self-confidence
3. Emotional stability

III. Identify the uses and limitations of SCBA **2-4.3 (3-3.1)**

- A. Limited visibility
- B. Decreased ability to communicate
- C. Increased weight
- D. Decreased mobility

IV. Identify each component and safety feature of SCBA. **2-4.4 (3-3.1)**

*NOTE: Closed circuit used in hazardous materials is not used in firefighting*

A. Basic components of open-circuit SCBA

1. Backpack and harness assembly
  - a) Designed to hold the air cylinder on the firefighter's back.
  - b) Adjustable harness straps provide a secure fit.
  - c) Waist strap is designed to properly distribute weight of cylinder pack.
2. Air cylinder assembly
  - a) Many different sizes available.
  - b) Main weight of the breathing apparatus.
  - c) Cylinder pressures and capacities:
    - 1) Low pressure: 2216 PSI, 45 cubic feet of air
      - (a) Rated to be 30-minute cylinder
      - (b) Expected use of time 12 to 18 minutes

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- 2) Low pressure: 3000 PSI, 66 cubic feet of air
  - (a) Rated as a 45-minute cylinder
- 3) High pressure: 4500 PSI, 45 cubic feet of air
  - (a) Rated as a 30-minute cylinder
- 4) High pressure: 4500 PSI, 88 or 90 cubic feet of air
  - (a) Rated as a one hour cylinder
- 3. Regulator
  - a) Regulator reduces the pressure from the cylinder to slightly above atmospheric pressure and controls the flow to meet the needs of the wearer
  - b) By-pass valve or purge valve is used as an emergency valve should the regulator fail.
  - c) Pressure gauges are sometimes located on the regulator or in close proximity to the facepiece.
    - 1) Should read within 100 PSI of the cylinder gauge.
  - d) All units are required to have an audible low pressure/quarter service alarm.
- 4. Facepiece assembly
  - a) Lens
  - b) Exhalation valve - one way valve
  - c) Possibly a low pressure hose
  - d) Adjustable straps or webbing
  - e) Speaking diaphragm
- B. Closed-circuit breathing apparatus
  - 1. Not commonly used in the fire service
  - 2. Sometimes used for hazardous materials or confined space incidents
  - 3. Air supply of 30 minutes to 4 hours
  - 4. Contain a cylinder of oxygen, filter system, regulator valves
  - 5. Filters and cleans exhaled breath and adds pure oxygen

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- V. Identify the major components of a SCBA recharging system, giving the purpose and operating principles per manufacturer's recommendations. **2-4.4, 2-4.5 (3-3.1)**
- A. Compressor
1. Takes air and compresses it.
  2. Operating principles:
    - a. Usually electric driven motors
    - b. Takes ambient air and compresses it in stages
    - c. Air is cooled after each stage
- B. Purification system
1. Removes some contaminants in the air
  2. Components
    - a. Mechanical filter
    - b. Dryer
    - c. Air sweetener
    - d. Carbon monoxide converter
  3. Operating procedures
    - a. Air moves from compressor to:
      - 1) Permanent filtering system
      - 2) Replaceable filtering systems
    - b. Permanent systems remove large solid and liquid contaminants.
    - c. Replaceable systems remove:
      - 1) Oil
      - 2) Water
      - 3) Odors
      - 4) Other gases and contaminants
- C. Cascade (storage) system
1. Three or more 300 cubic foot cylinders
  2. Used for storage of compressed air
  3. Open cylinders one at a time during filling of SCBA bottles

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- D. Charging station
  - 1. Used to protect the operator should the cylinder rupture
  - 2. May or may not contain water depending on the type of cylinders being refilled
  - 3. Contains fragmentation deflector
  - 4. May contain other control valves
- VI. Identify the daily inspection procedures for the main components of SCBA. **2-4.6 (3-5.3)**
  - A. NFPA1404 and NFPA1500 require all SCBA to be inspected:
    - 1. After each use
    - 2. Weekly
    - 3. Monthly
    - 4. Annually
  - B. Periodic inspection and care
    - 1. Check the facepiece
    - 2. Check the low pressure hose (if applicable)
    - 3. Check the exhalation valve by inhaling slowly with the thumb or palm over the end of the hose connection and then exhaling slowly
    - 4. Connect the low-pressure hose to the regulator and check the performance of the regulator, by inhaling deeply and quickly, checking to make sure that the regulator supplies a full flow.
  - C. Cleaning and sanitizing of SCBA components
    - 1. Immediately after each use
  - D. Daily inspection procedures
    - 1. Check for full cylinder (minimum (90%))
    - 2. Check all gauges for proper operation (should register within 100 psi of each other)
    - 3. Check low-pressure, quarter service alarm for function
    - 4. Check all hose connections (tight, not leaking)
    - 5. Facepiece is clean and operational
    - 6. Straps and harness in good condition and is fully extended
    - 7. Operate bypass and mainline valves
      - a. Bypass must be returned to closed position after testing

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VII. Identify safety procedures to be used when wearing and working with SCBA to include: **2-4.7** (3-3.1, 3-3.4, 3-3.8)

A. General safety conditions **2-4.7.1**

1. Use the provided SCBA in accordance with manufacturer's recommendations, instructions and training
2. Know the SCBA protection limits and safety features
3. Know air supply duration
4. Calculate a point of no return
5. Ensure proper facepiece fit
6. Follow basic safety guidelines:
  - a. Before entering a hazardous atmosphere, don and check the unit for operation
  - b. Always work in pairs
  - c. Stay in contact with a wall, hose line, lifeline/guideline or partner(s)
  - d. Work to control breathing
  - e. Be extremely cautious if forced to use the bypass valve
  - f. Do not take the facepiece off
  - g. Report any malfunctions or apparent danger
7. Protect the SCBA from damage
8. Inspect and maintain SCBA in accordance with department policy

B. Entry monitoring system **2-4.7.2**

1. Entry control
  - a. Some type of device provided for each individual entering the area
  - b. Entry time and location maintained
2. Guideline system
  - a. A series of lines to which others entering are attached
  - b. An individual remains outside to monitor the line
  - c. Entry time and location maintained

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- C. Maintenance and storage operations **2-4.7.3**
  - 1. Cleaning and sanitizing
    - a. Follow department SOP's
    - b. Clean and sanitize face piece after each use
    - c. Use cleansers recommended by the manufacturer
    - d. Inventory of spare facepieces
  - 2. Inspection and testing for defects
    - a. Follow department SOP's
    - b. Inspect all new units before placing in service
    - c. Have breathing air quality tested quarterly
    - d. Ensure all inspections are performed by qualified personnel
    - e. Keep accurate records
    - f. Remove defective facepieces from service
  - 3. Repair and conditioning
    - a. Follow manufacturer procedures and recommendations
    - b. Allow only personnel certified by the manufacturer to repair units
    - c. Use exact replacement parts
  - 4. Storage
    - a. Follow department procedures
    - b. Follow manufacturer's instructions for storage

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VIII. Identify the following emergency procedures to be used in the event of SCBA failure: **2-4.8 (3-3.1(b))**

**THIS TYPE OF TRAINING IS BASED ON YOUR PARTICULAR SCBA, FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS AND YOUR DEPARTMENT'S SOP'S.**

A. Use of the emergency by-pass or purge valve **2-4.8.1**

1. In the event of a regulator malfunction, turn off mainline valve
2. Open the by-pass or purge valve to provide a flow of air into the facepiece
3. Close the by-pass valve after each breath and then open the valve when the next valve is needed
4. Advise your partner of your regulator malfunction and exit to a non-toxic atmosphere together
5. Remove the unit from service and have it checked

**THIS TYPE OF TRAINING IS BASED ON YOUR PARTICULAR SCBA, FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS AND YOUR DEPARTMENT'S SOP'S.**

B. Conservation of air **2-4.8.2**

1. You should always practice controlled breathing when using SCBA
2. When your air supply is low, you may practice skip breathing
3. Skip breathing is an emergency breathing technique used to extend the use of your remaining air supply
4. To use this technique, inhale (as in regular breathing), hold your breath as long as it would take to exhale, then inhale once again before exhaling
5. Take normal breaths and exhale slowly to keep carbon dioxide in the lungs in the proper balance
6. This is an emergency technique: inform your partner of your low air supply and exit to a non-toxic atmosphere together

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**NOTE: THIS TYPE OF TRAINING IS BASED ON YOUR PARTICULAR SCBA, FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS AND YOUR DEPARTMENT'S SOP'S.**

- C. Breathing from the breathing tube or regulator **2-4.8.3**
1. This technique is used in the event of a facepiece failure.
  2. You may breathe directly from the low-pressure hose (after disconnecting it from the facepiece) or the regulator
  3. Hold the hose or regulator opening close to your mouth
  4. Avoid breathing in fire gases when inhaling
  5. This is an **extreme** emergency technique; inform your partner and exit to a non-toxic atmosphere together **immediately**

*ADDITIONAL INFORMATION ON EMERGENCY BREATHING SITUATIONS CAN BE FOUND IN IFSTA'S SELF-CONTAINED BREATHING APPARATUS MANUAL.*

**ALWAYS PRACTICE IN A NON-TOXIC ATMOSPHERE ONLY!**

**EVALUATION TO BE DONE IN A NON-TOXIC ATMOSPHERE ONLY!**

**THE ABOVE DRILL EVOLUTIONS SHALL NEVER BE DONE IN A TOXIC ATMOSPHERE!**

- IX. Identify the major components of a SCBA recharging system, giving purpose and operating principles. **2-4.9 (3-5.3)**
- A. Compressor
1. Takes air and compresses it
  2. Operating principles
    - a. Usually electric driven motors
    - b. Takes ambient air and compresses it in stages
    - c. Air is cooled after each stage
- B. Purification system
1. Removes some contaminants in the air



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2. Components
  - a. Mechanical filter
  - b. Dryer
  - c. Air sweetener
  - d. Carbon monoxide converter
3. Operating principles
  - a. Air moves from the compressor to
    - 1) Permanent filtering systems
    - 2) Replaceable filtering systems
  - b. Permanent systems remove large solid and liquid contaminants
  - c. Replaceable systems remove
    - 1) Oil
    - 2) Water
    - 3) Odors
    - 4) Other gases and contaminants
- C. Cascade (storage) system
  1. Three or more 300-cubic-foot cylinders
  2. Used for storage of compressed air
  3. Open cylinders one at a time during filling of SCBA bottles
- D. Charging station
  1. Used to protect the operator should the cylinder rupture
  2. May or may not contain water depending on the type of cylinders being refilled
  3. Contains fragmentation deflector
  4. May contain other control valves

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- X. Identify the rescue procedures for the following without compromising the rescuer's respiratory protection: **2-14.10 (3-3.1(b), 3-3.4(b))**
- A. A firefighter with functioning respiratory protection **2-4.10.1**
1. Determine if the SCBA is functioning.
  2. Roll the firefighter onto the side, ensuring that the air supply is not compromised.
  3. Verify that the SCBA is securely fastened on the firefighter.
  4. Grasp the shoulder straps of the firefighter's SCBA and drag him from the area.
- B. A firefighter without functioning respiratory protection. **2-4.10.2**
1. Determine if the SCBA is functioning.
  2. If not, disconnect the lower pressure tube and place inside the firefighter's coat or remove the regulator from the facepiece, leaving the facepiece in place.
  3. Roll the firefighter onto the side.
  4. Verify that the SCBA is securely fastened on the firefighter.
  5. Grasp the shoulder straps of the firefighter's SCBA and drag him from the area.
- C. An individual without functioning respiratory protection **2-4.10.3**
1. **NEVER** remove your facepiece to share your SCBA with a victim.
  2. Do not put yourself in a position that a conscious victim can pull your facepiece from your face in an attempt to get air.
  3. If the civilian victim is conscious, lead them to the nearest exit as quickly as possible. Remember that the victim does not have protective clothing and may need to be taken out via a safer route than you entered.
  4. If the victim is unconscious, remove the victim as quickly as possible using any of the various drags or carries.

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- XI. Identify the methods of donning and doffing of SCBA while wearing full protective equipment. **2-4.11 (3-3.1)**
- A. Dons and activates SCBA, within one minute, according to manufacturer's recommendations. **2-4.11.1**
1. Donning SCBA from the ground – Over the head method
    - a. Crouch or kneel at the end opposite the cylinder valve.
    - b. Check the air cylinder gauge to ensure that the cylinder is full.
    - c. Open the cylinder valve slowly and listen for the audible alarm as the system pressurizes.
    - d. Fully open the cylinder valve after the alarm sounds:
      - 1) If the audible alarm does not sound, or if it sounds but does not stop, place the unit out of service by tagging it and notifying an officer; use another unit.
    - e. Check the regulator gauge and cylinder gauge pressure to ensure that they read within 100 psi of each other.
    - f. Spread the harness straps out to their respective sides. (This step may not be able to be performed at this point depending on the SCBA the student is using.)
    - g. Grasp the back plate or cylinder with both hands, one at each side, making sure that the cylinder valve is pointed away from you.
    - h. Lift the cylinder, letting the regulator and harness hang freely.
    - i. Raise the cylinder overhead, letting the elbows find the respective loosened harness shoulder strap loops.
    - j. Grasp the shoulder straps as the SCBA begins to slide down the back.
    - k. Let the straps slide through the hands as the backpack lowers into place.
    - l. Lean forward to balance the cylinder on the back and fasten the chest buckle if the unit has a chest strap.
    - m. Continue leaning forward and tighten the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.)
    - n. Fasten and adjust the waist strap until the unit fits snugly.

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- o. If the facepiece harness is a web-type, grasp the harness with your thumbs through the straps from the inside, and spread the straps.
- p. Push the top of the harness up your forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
- q. Center the chin in the chin cup and position the face piece harness so it is centered at the rear of the head.
- r. Tighten the lower harness straps by pulling them evenly and simultaneously to the rear.
- s. Tighten the temple harness straps by pulling them evenly and simultaneously to the rear.
- t. Tighten the top harness straps by pulling them evenly and simultaneously to the rear.
- u. Perform user seal check
  - 2) Check the facepiece seal by exhaling deeply, sealing the end of the low pressure hose with your bare hand, and inhaling slowly (not deeply), holding your breath for 10 seconds. (NOTE: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.)
    - a) If there is evidence of leaking, adjust or re-don facepiece.
  - 3) Check the exhalation valve by inhaling, while sealing the end of the low-pressure hose with the palm of your hand, and then exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keep the low-pressure hose sealed, press the facepiece against your face, and exhale to free the valve.
    - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully
- v. Connect the low-pressure hose to the regulator. If the unit has a donning switch, turn it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, open the mainline valve.

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- w. Check for positive pressure by gently breaking the facepiece seal by inserting two (2) fingers under the edge of the facepiece. You should be able to feel air moving past your fingers. If you cannot feel air movement, remove the unit from service and have it checked.
- 2. From the ground – Crossed-arms coat method
  - a. Crouch or kneel at the cylinder valve end of the unit.
  - b. Check the air cylinder gauge to ensure that the cylinder is full.
  - c. Open the cylinder valve slowly and listens for the audible alarm as the system pressurizes.
  - d. Open the cylinder valve fully after the alarm sounds.
    - 1) If the audible alarm does not sound, or if it sounds but does not stop, place the unit out of service by tagging it and notifying an officer; use another unit.
  - e. Check the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other.
  - f. Spread the harness straps out to their respective sides.
  - g. Cross your arms, left over right.
  - h. Grasp the shoulder straps at the top of the harness, left hand holding the left strap and right hand holding the right strap
  - i. Lift the SCBA. Using both arms, swing the unit around your right shoulder, and raising your left arm, continue brining the unit behind your head and onto your back. Both hands should still be grasping the shoulder straps high on the harness.
  - j. Maintaining a firm grip on the straps, slide your hands down to the shoulder strap buckles. Your elbows should be between the straps and the backpack.
  - k. Lean slightly forward to balance the cylinder on the back; tighten the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.).
  - l. Continue leaning forward and fasten the check buckle (if the unit has a chest strap.)
  - m. Fasten and adjust the waist strap until the unit fits snugly.
  - n. If the facepiece harness is a web type, grasp the harness with your thumbs through the straps from the inside, and spread the straps.

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- o. Push the top of the harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
- p. Center the chin in the chin cup and position the harness so that it is centered at the rear of the head.
- q. Tighten the lower harness straps by pulling them evenly and simultaneously to the rear.
- r. Tighten the temple harness straps by pulling them evenly and simultaneously to the rear.
- s. Tighten the top harness straps by pulling them evenly and simultaneously to the rear.
- t. Perform user seal check:
  - 1) Check the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with your bare hand, and inhaling slowly (not deeply), holding your breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjust or re-don the facepiece.
  - 2) Check the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of your hand, and exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keep the low-pressure hose sealed, press facepiece against your face, and exhale to free the valve.
    - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- u. Connect the low-pressure hose to the regulator. If the unit has a donning switch, turn it to the PRESSURE, USE OR ON position. If the unit does not have a donning switch, open the mainline valve.

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- v. Check for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. You should be able to feel air moving past your fingers. If you cannot feel air movement, remove the unit and have it checked.
- w. Activate Pass, if not integral part of SCBA

3. From the ground – Regular coat method

- a. Crouch or kneel at the cylinder valve end of the unit.
- b. Check the air cylinder gauge to ensure that the cylinder is full.
- c. Open the cylinder valve slowly and listen for the audible alarm as the system pressurizes.
  - 1) If the audible alarm does not sound, or if it sounds but does not stop, place the unit out of service by tagging it and notifying an officer; use another unit.
- d. Fully open the cylinder valve after the alarm sounds.
- e. Check the regulator gauge and cylinder gauge to ensure that they read within 100 psi of the same pressure.
- f. Spread the harness straps out to their respective sides and position the upper portion of the straps over the top of the back plate.
- g. At the top of the harness, grasp the left strap with your left hand; grasp the lower portion of the same strap with your right hand. (When kneeling at the valve end of the cylinder, the left harness strap will be to your right).
- h. Lift the SCBA. Using both arms, swing the unit around the left shoulder, and onto the back. Both hands should still be grasping the shoulder strap.
- i. Maintaining your grip on the strap, with your left hand, release your right hand; insert your right arm between the right shoulder strap and the backpack frame.
- j. Lean forward to balance the cylinder on your back and fasten the chest buckle if the unit has a chest strap.
- k. Continue leaning forward and tighten the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.)
- l. Fasten and adjust the waist strap until the unit fits snugly.

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- m. If the facepiece harness is a web-type, grasp the harness with the thumbs through the straps from the inside, and spread the straps.
- n. Push the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
- o. Center the chin in the chin cup and position the facepiece harness so that it is centered at the rear of the head.
- p. Pull the lower harness straps evenly and simultaneously to the rear to tighten them.
- q. Pull the temple harness straps evenly and simultaneously to the rear to tighten them.
- r. Pull the top harness straps evenly and simultaneously to the rear to tighten them.
- s. Perform user seal check:
  - 1) Check the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with your bare hand, and inhaling slowly (not deeply), holding your breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjust or re-don the facepiece.
  - 2) Check the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of your hand, and exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keep the low-pressure hose sealed, press facepiece against your face, and exhale to free the valve.
    - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- t. Connect the low-pressure hose to the regulator. If the unit has a donning switch, turn it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, open the mainline valve.



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- u. Check for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. You should be able to feel air moving past your fingers. If you cannot feel air movement, remove the unit and have it checked.
  - v. Activate PASS, if not integral part of SCBA
4. From the ground - Alternate coat method
- a. Crouch or kneel at the cylinder valve end of the unit.
  - b. Check the air cylinder gauge to ensure that the cylinder is full.
  - c. Open the cylinder valve slowly and listen for the audible alarm as the system pressurizes.
  - d. Fully open the cylinder valve after the alarm sounds.
    - 1) If the audible alarm does not sound, or if it sounds but does not stop, place the unit out of service by tagging it and notifying an officer; use another unit.
  - e. Check the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other.
  - f. Spread the straps out to their respective sides and position the upper portion of the straps over the top of the back plate.
  - g. Grasp the top of the left shoulder strap with your left hand; grasp the regulator with your right hand.
  - h. Lift the SCBA; swing it around the left shoulder and onto the back; maintaining control of the regulator with your right hand.
  - i. Transfer the regulator to your left hand; insert your right arm through the right shoulder strap; grasp the end of the waist strap with your right hand and loosely connect the waist strap.
  - j. Lean forward to balance the cylinder on your back and then fasten the chest buckle, if the unit has a chest strap.
  - k. Continue leaning forward and tighten the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.)
  - l. Fasten and adjust the waist strap until the unit fits snugly.
  - m. If the facepiece harness is a web-type, grasp the harness with your thumbs through the straps from the inside, and spread the straps.

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- n. Push the top of the harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
- o. Center the chin in the chin cup and position the harness so that it is centered at the rear of the head.
- p. Tighten the lower harness straps by pulling them evenly and simultaneously to the rear.
- q. Tighten the temple harness straps by pulling them evenly and simultaneously to the rear.
- r. Tighten the top harness straps by pulling them evenly and simultaneously to the rear.
- s. Perform user seal check:
  - 1) Check the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with your bare hand, and inhaling slowly (not deeply), holding your breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjust or re-don the facepiece.
  - 2) Check the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of your hand, and exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keep the low-pressure hose sealed, press facepiece against your face, and exhale to free the valve.
    - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- t. Connect the low-pressure hose to the regulator. If the unit has a donning switch, turn it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, open the mainline valve.

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- u. Check for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece.
    - 1) You should be able to feel air moving past your fingers. If you cannot feel air movement, remove the unit and have it checked.
  - v. Activate PASS, if not integral part of SCBA.
5. From a backup mount
- a. Uncover the SCBA
  - b. Remove facepiece and place it nearby
  - c. Open the cylinder valve slowly and listen for the audible alarm as the system pressurizes.
  - d. Fully open the cylinder valve after the alarm sounds.
    - 1) If the audible alarm does not sound, or if it sounds but does not stop, place the unit out of service by tagging it and notifying an officer; use another unit.
  - e. Check the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other
  - f. Back up against the cylinder back plate
  - g. Place your arms through the shoulder straps.
  - h. Lean slightly forward to balance the unit on your back and release the cylinder according to the type of mounting device.
  - i. Step forward to clear the unit from the mount while fastening the chest buckle, if the unit has a chest strap
  - j. Tighten the shoulder straps
  - k. Fasten and adjust the waist strap until the unit fits snugly
  - l. If the facepiece harness is a web-type, grasp the harness with the thumbs through the straps from the inside, and spread the straps
  - m. Push the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece
  - n. Center the chin in the chin cup and position the facepiece harness so that it is centered at the rear of the head
  - o. Pull the lower harness straps evenly and simultaneously to the rear to tighten them
  - p. Pull the temple harness straps evenly and simultaneously to the rear to tighten them

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- q. Pull the top harness straps evenly and simultaneously to the rear to tighten them
  - r. Perform user seal check:
    - 1) Check the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with your bare hand, and inhaling slowly (not deeply), holding your breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
      - s. If there is evidence of leaking, adjust or re-don the facepiece.
    - 2) Check the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of your hand, and exhaling.
      - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keep the low-pressure hose sealed, press facepiece against your face, and exhale to free the valve.
      - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
  - t. Connect the low-pressure hose to the regulator. If the unit has a donning switch, turn it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, open the mainline valve.
  - u. Check for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. You should be able to feel air moving past your fingers. If you cannot feel air movement, remove the unit and have it checked.
  - v. Activate PASS, if not integral part of SCBA.
6. Donning from a Seat-Mount in route
- a. Check the air cylinder gauge to ensure the cylinder is full prior to response, if possible
  - b. Open the cylinder valve slowly and listen for the audible alarm as the system pressurizes.

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- c. Fully open the cylinder valve after the alarm sounds.
  - 1) If the audible alarm does not sound, or if it sounds but does not stop, place the unit out of service by tagging it and notifying an officer; use another unit.
- d. Check the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other
- e. Place your arms through fully extended shoulder straps.
- f. Tighten the shoulder straps
- g. Fasten and adjust the waist strap until the unit fits snugly. (Be careful not to entangle with apparatus seat belt)
- h. Re-check shoulder and waist straps when you dismount the apparatus.
- i. If the facepiece harness is a web-type, grasp the harness with the thumbs through the straps from the inside, and spread the straps
- j. Push the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece
- k. Center the chin in the chin cup and position the facepiece harness so that it is centered at the rear of the head
- l. Pull the lower harness straps evenly and simultaneously to the rear to tighten them
- m. Pull the temple harness straps evenly and simultaneously to the rear to tighten them
- n. Pull the top harness straps evenly and simultaneously to the rear to tighten them
- o. Perform user seal check:
  - 1) Check the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with your bare hand, and inhaling slowly (not deeply), holding your breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjust or re-don the facepiece.

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- 2) Check the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of your hand, and exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keep the low-pressure hose sealed, press facepiece against your face, and exhale to free the valve.
    - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
  - p. Connect the low-pressure hose to the regulator. If the unit has a donning switch, turn it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, open the mainline valve.
  - q. Check for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. You should be able to feel air moving past your fingers. If you cannot feel air movement, remove the unit and have it checked.
  - r. Activate PASS, if not integral part of SCBA
7. Donning the facepiece with facepiece-mounted regulator
- a. If the facepiece harness is a web-type, grasp the harness with the thumbs through the straps from the inside, and spread the straps
  - b. Push the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece
  - c. Center the chin in the chin cup and position the facepiece harness so that it is centered at the rear of the head
  - d. Pull the lower harness straps evenly and simultaneously to the rear to tighten them
  - e. Pull the temple harness straps evenly and simultaneously to the rear to tighten them
  - f. Pull the top harness straps evenly and simultaneously to the rear to tighten them

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- g. Perform user seal check:
  - 1) Check the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with your bare hand, and inhaling slowly (not deeply), holding your breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjust or re-don the facepiece.
  - 2) Check the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of your hand, and exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keep the low-pressure hose sealed, press facepiece against your face, and exhale to free the valve.
    - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- k. Check for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. You should be able to feel air moving past your fingers. If you cannot feel air movement, remove the unit from service and have it checked.

**B. Doffs SCBA according to manufacturer's recommendations. 2-4.11.2**

- 1. With Harness Mounted Regulator
  - a. Close the mainline valve.
  - b. If the unit has a donning switch, make sure that it is in donning mode.
  - c. Disconnect the low pressure hose from the regulator.
  - d. Take off the helmet, or loosen and push it and the hood, back off the head.
  - e. Loosen the facepiece harness strap buckles.
  - f. Take off the facepiece and extend the harness straps fully.

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- g. Unbuckle the waist belt and fully extend the adjustment.
  - h. Disconnect the chest buckle if the unit has a chest strap.
  - i. Lean forward
  - j. Release the shoulder strap buckles and hold them open while fully extending the straps.
  - k. Grasp the shoulder straps firmly with the respective hands and slip the shoulder strap from the shoulder opposite the regulator, and remove the arm from the shoulder strap.
  - l. Grasp the regulator with the free hand and allow the other strap to slide off the shoulder.
  - m. Lower the SCBA to the ground making sure you do not drop the regulator or allow it to strike anything.
  - n. Close the cylinder valve.
  - o. Relieve the excess pressure from the regulator following manufacturer's recommendations.
  - p. Turn off PASS device.
2. With Facepiece Mounted Regulator
- a. Take off the helmet, or loosen and push it and the hood, back off your head.
  - b. If the unit has a donning switch, make sure that it is in donning mode.
  - c. Depending upon the make of SCBA and manufacturer's instructions, disconnect the regulator from the facepiece.
  - d. Loosen the facepiece harness strap buckles.
  - e. Unbuckle the waist belt and fully extend the adjustment.
  - f. Disconnect the chest buckle, if the unit has a chest strap.
  - g. If the unit is so equipped, attach the regulator to the harness clip, or control the regulator by holding it while performing the next steps.
  - h. Lean forward.
  - i. Release the shoulder straps buckles and hold them open while fully extending the straps.
  - j. Grasp the shoulder straps firmly with the respective hands and slip off the shoulder strap from the shoulder opposite the regulator, and remove the arm from the shoulder strap.
  - k. Grasp the regulator with the free hand and allow the other strap to slide off the shoulder.
  - l. Lower the SCBA to the ground making sure you do not drop the regulator or allow it to strike anything.
  - m. Close the cylinder valve.
  - n. Relieve the excess pressure from the regulator following manufacturer's recommendations.
  - o. Turn off PASS device



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1. With Harness Mounted Regulator
  - a. Close the mainline valve.
  - b. If the unit has a donning switch, make sure that it is in donning mode.
  - c. Disconnect the low pressure hose from the regulator.
  - d. Take off the helmet, or loosen and push it and the hood, back off the head.
  - e. Loosen the facepiece harness strap buckles.
  - f. Take off the facepiece and extend the harness straps fully.
  - g. Unbuckle the waist belt and fully extend the adjustment.
  - h. Disconnect the chest buckle if the unit has a chest strap.
  - i. Lean forward
  - j. Release the shoulder strap buckles and hold them open while fully extending the straps.
  - k. Grasp the shoulder straps firmly with the respective hands and slip the shoulder strap from the shoulder opposite the regulator, and remove the arm from the shoulder strap.
  - l. Grasp the regulator with the free hand and allow the other strap to slide off the shoulder.
  - m. Lower the SCBA to the ground making sure you do not drop the regulator or allow it to strike anything.
  - n. Close the cylinder valve.
  - o. Relieve the excess pressure from the regulator following manufacturer's recommendations.
  - p. Turn off PASS device.
2. With Facepiece Mounted Regulator
  - a. Take off the helmet, or loosen and push it and the hood, back off your head.
  - b. If the unit has a donning switch, make sure that it is in donning mode.
  - c. Depending upon the make of SCBA and manufacturer's instructions, disconnect the regulator from the facepiece.
  - d. Loosen the facepiece harness strap buckles.
  - e. Unbuckle the waist belt and fully extend the adjustment.
  - f. Disconnect the chest buckle, if the unit has a chest strap.
  - g. If the unit is so equipped, attach the regulator to the harness clip, or control the regulator by holding it while performing the next steps.
  - h. Lean forward.
  - i. Release the shoulder straps buckles and hold them open while fully extending the straps.

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- j. Grasp the shoulder straps firmly with the respective hands and slip off the shoulder strap from the shoulder opposite the regulator, and remove the arm from the shoulder strap.
- k. Grasp the regulator with the free hand and allow the other strap to slide off the shoulder.
- l. Lower the SCBA to the ground making sure you do not drop the regulator or allow it to strike anything.
- m. Close the cylinder valve.
- n. Relieve the excess pressure from the regulator following manufacturer's recommendations.
- o. Turn off PASS device

**XII. Demonstrate donning and doffing of SCBA while wearing full protective equipment. 2-4.12 (3-3.1(b))**

**A. Dons and activates pressure/demand type SCBA within one minute according to manufacturer's recommendations. 2-4.11.1**

**1. Donning SCBA from the ground – Over the head method**

- a. Crouches or kneels at the end opposite the cylinder valve.
- b. Checks the air cylinder gauge to ensure that the cylinder is full.
- c. Opens the cylinder valve slowly and listens for the audible alarm as the system pressurizes.
- d. Fully opens the cylinder valve after the alarm sounds:
  - 1) If the audible alarm does not sound, or if it sounds but does not stop, places the unit out of service by tagging it and notifying an officer; uses another unit.
- e. Checks the regulator gauge and cylinder gauge pressure to ensure that they read within 100 psi of each other.
- f. Spreads the harness straps out to their respective sides. (This step may not be able to be performed at this point depending on the SCBA the student is using.)
- g. Grasps the back plate or cylinder with both hands, one at each side, making sure that the cylinder valve is pointed away from him/her.
- h. Lifts the cylinder, letting the regulator and harness hang freely.
- i. Raises the cylinder overhead, letting the elbows find the respective loosened harness shoulder strap loops.

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- j. Grasps the shoulder straps as the SCBA begins to slide down the back.
  - k. Lets the straps slide through the hands as the backpack lowers into place.
  - l. Leans forward to balance the cylinder on the back and fastens the chest buckle if the unit has a chest strap.
  - m. Continues leaning forward and tightens the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.)
  - n. Fastens and adjusts the waist strap until the unit fits snugly.
  - o. If the facepiece harness is a web-type, grasps the harness with his/her thumbs through the straps from the inside, and spreads the straps.
  - p. Pushes the top of the harness up his/her forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
  - q. Centers the chin in the chin cup and positions the face piece harness so it is centered at the rear of the head.
  - r. Tightens the lower harness straps by pulling them evenly and simultaneously to the rear.
  - s. Tightens the temple harness straps by pulling them evenly and simultaneously to the rear.
  - t. Tightens the top harness straps by pulling them evenly and simultaneously to the rear.
  - u. Performs user seal check
- 
- 1) Checks the facepiece seal by exhaling deeply, seals the end of the low pressure hose with his/her bare hand, and inhales slowly (not deeply), holding his/her breath for 10 seconds. (NOTE: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.)
    - a) If there is evidence of leaking, adjusts or re-dons facepiece.

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- 2) Checks the exhalation valve by inhaling, while sealing the end of the low-pressure hose with the palm of his/her hand, and then exhaling.
  - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keeps the low-pressure hose sealed, presses the facepiece against his/her face, and exhales to free the valve.
  - b) Uses caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully
- v. Connects the low-pressure hose to the regulator. If the unit has a donning switch, turns it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, opens the mainline valve.
- w. Checks for positive pressure by gently breaking the facepiece seal by inserting two (2) fingers under the edge of the facepiece. He/she should be able to feel air moving past his/her fingers. If he/she cannot feel air movement, removes the unit from service and has it checked.

**2. From the ground – Crossed-arms coat method**

- a. Crouches or kneels at the cylinder valve end of the unit.
- b. Checks the air cylinder gauge to ensure that the cylinder is full.
- c. Opens the cylinder valve slowly and listens for the audible alarm as the system pressurizes.
- d. Opens the cylinder valve fully after the alarm sounds.
  - 1) If the audible alarm does not sound, or if it sounds but does not stop, places the unit out of service by tagging it and notifying an officer; uses another unit.
- e. Checks the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other.
- f. Spreads the harness straps out to their respective sides.
- g. Crosses his/her arms, left over right.
- h. Grasps the shoulder straps at the top of the harness, left hand holding the left strap and right hand holding the right strap

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- i. Lifts the SCBA. Using both arms, swings the unit around his/her right shoulder, and raises his/her left arm, continues bringing the unit behind his/her head and onto his/her back. Both hands should still be grasping the shoulder straps high on the harness.
- j. Maintaining a firm grip on the straps, slides his/her hands down to the shoulder strap buckles. His/her elbows should be between the straps and the backpack.
- k. Leans slightly forward to balance the cylinder on the back; tightens the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.)
- l. Continues leaning forward and fastens the chest buckle (if the unit has a chest strap.)
- m. Fastens and adjusts the waist strap until the unit fits snugly.
- n. If the facepiece harness is a web type, grasps the harness with his/her thumbs through the straps from the inside, and spreads the straps.
- o. Pushes the top of the harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
- p. Centers the chin in the chin cup and positions the harness so that it is centered at the rear of the head.
- q. Tightens the lower harness straps by pulling them evenly and simultaneously to the rear.
- r. Tightens the temple harness straps by pulling them evenly and simultaneously to the rear.
- s. Tightens the top harness straps by pulling them evenly and simultaneously to the rear.
- t. Performs user seal check:
  - 1) Checks the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with his/her bare hand, and inhales slowly (not deeply), holding his/her breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjusts or re-dons the facepiece.

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- 2) Checks the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of his/her hand, and exhaling.
  - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keeps the low-pressure hose sealed, presses facepiece against his/her face, and exhales to free the valve.
  - b) Uses caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- u. Connects the low-pressure hose to the regulator. If the unit has a donning switch, turns it to the PRESSURE, USE OR ON position. If the unit does not have a donning switch, opens the mainline valve.
- v. Checks for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. He/she should be able to feel air moving past your fingers. If he/she cannot feel air movement, removes the unit and has it checked.
- w. Activates Pass, if not integral part of SCBA

**3. From the ground – Regular coat method**

- a. Crouches or kneels at the cylinder valve end of the unit.
- b. Checks the air cylinder gauge to ensure that the cylinder is full.
- c. Opens the cylinder valve slowly and listens for the audible alarm as the system pressurizes.
  - 1) If the audible alarm does not sound, or if it sounds but does not stop, places the unit out of service by tagging it and notifying an officer; use another unit.
- d. Fully opens the cylinder valve after the alarm sounds.
- e. Checks the regulator gauge and cylinder gauge to ensure that they read within 100 psi of the same pressure.
- f. Spreads the harness straps out to their respective sides and positions the upper portion of the straps over the top of the back plate.

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- g. At the top of the harness, grasps the left strap with his/her left hand; grasps the lower portion of the same strap with his/her right hand. (When kneeling at the valve end of the cylinder, the left harness strap will be to his/her right).
- h. Lifts the SCBA. Using both arms, swings the unit around the left shoulder, and onto the back. Both hands should still be grasping the shoulder strap.
- i. Maintaining his/her grip on the strap, with his/her left hand, releases his/her right hand; inserts his/her right arm between the right shoulder strap and the backpack frame.
- j. Leans forward to balance the cylinder on his/her back and fastens the chest buckle, if the unit has a chest strap.
- k. Continues leaning forward and tightens the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.)
- l. Fastens and adjusts the waist strap until the unit fits snugly.
- m. If the facepiece harness is a web-type, grasps the harness with the thumbs through the straps from the inside, and spreads the straps.
- n. Pushes the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
- o. Centers the chin in the chin cup and positions the facepiece harness so that it is centered at the rear of the head.
- p. Pulls the lower harness straps evenly and simultaneously to the rear to tighten them.
- q. Pulls the temple harness straps evenly and simultaneously to the rear to tighten them.
- r. Pulls the top harness straps evenly and simultaneously to the rear to tighten them.
- s. Performs user seal check:
  - 1) Checks the facepiece seal by exhaling deeply, sealing the end of the low pressure hose with his/her bare hand, and inhales slowly (not deeply), holding his/her breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjusts or re-dons the facepiece.

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- 2) Checks the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of his/her hand, and exhaling.
  - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keeps the low-pressure hose sealed, presses facepiece against his/her face, and exhales to free the valve.
  - b) Uses caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- t. Connects the low-pressure hose to the regulator. If the unit has a donning switch, turns it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, opens the mainline valve.
- u. Checks for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. He/she should be able to feel air moving past his/her fingers. If he/she cannot feel air movement, removes the unit and has it checked.
- v. Activates PASS, if not integral part of SCBA

**4. From the ground - Alternate coat method**

- a. Crouches or kneels at the cylinder valve end of the unit.
- b. Checks the air cylinder gauge to ensure that the cylinder is full.
- c. Opens the cylinder valve slowly and listens for the audible alarm as the system pressurizes.
- d. Fully opens the cylinder valve after the alarm sounds.
- e. If the audible alarm does not sound, or if it sounds but does not stop, places the unit out of service by tagging it and notifying an officer; uses another unit.
- f. Checks the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other.
- g. Spreads the straps out to their respective sides and positions the upper portion of the straps over the top of the back plate.
- h. Grasps the top of the left shoulder strap with his/her left hand; grasps the regulator with his/her right hand.
- i. Lifts the SCBA; swings it around the left shoulder and onto the back; maintaining control of the regulator with his/her right hand.



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- j. Transfers the regulator to his/her left hand; inserts his/her right arm through the right shoulder strap; grasps the end of the waist strap with his/her right hand and loosely connects the waist strap.
- k. Leans forward to balance the cylinder on his/her back and then fastens the chest buckle, if the unit has a chest strap.
- l. Continues leaning forward and tightens the shoulder straps by pulling them outward and downward. (Note: It is sometimes necessary to lean forward with a quick jumping motion to properly position the SCBA on the back while tightening the straps.)
- m. Fastens and adjusts the waist strap until the unit fits snugly.
- n. If the facepiece harness is a web-type, grasps the harness with his/her thumbs through the straps from the inside, and spreads the straps.
- o. Pushes the top of the harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece.
- p. Centers the chin in the chin cup and positions the harness so that it is centered at the rear of the head.
- q. Tightens the lower harness straps by pulling them evenly and simultaneously to the rear.
- r. Tightens the temple harness straps by pulling them evenly and simultaneously to the rear.
- s. Tightens the top harness straps by pulling them evenly and simultaneously to the rear.
- t. Performs user seal check:
  - 1) Checks the facepiece seal by exhaling deeply, sealing the end of the low pressure hose with his/her bare hand, and inhaling slowly (not deeply), holds his/her breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjusts or re-dons the facepiece.

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- 2) Checks the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of his/her hand, and exhaling.
  - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keeps the low-pressure hose sealed, presses facepiece against his/her face, and exhales to free the valve.
  - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- u. Connects the low-pressure hose to the regulator. If the unit has a donning switch, turns it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, opens the mainline valve.
- v. Checks for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece.
  - 1) He/she should be able to feel air moving past his/her fingers. If he/she cannot feel air movement, removes the unit and has it checked.
- w. Activates PASS, if not integral part of SCBA.

**5. From a backup mount**

- a. Uncovers the SCBA
- b. Removes facepiece and places it nearby
- c. Opens the cylinder valve slowly and listens for the audible alarm as the system pressurizes.
- d. Fully opens the cylinder valve after the alarm sounds.
  - 1) If the audible alarm does not sound, or if it sounds but does not stop, places the unit out of service by tagging it and notifying an officer; uses another unit.
- e. Checks the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other
- f. Backs up against the cylinder back plate
- g. Places his/her arms through the shoulder straps.

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- h. Leans slightly forward to balance the unit on his/her back and releases the cylinder according to the type of mounting device.
- i. Steps forward to clear the unit from the mount while fastening the chest buckle, if the unit has a chest strap
- j. Tightens the shoulder straps
- k. Fastens and adjusts the waist strap until the unit fits snugly
- l. If the facepiece harness is a web-type, grasps the harness with the thumbs through the straps from the inside, and spreads the straps
- m. Pushes the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece
- n. Centers the chin in the chin cup and positions the facepiece harness so that it is centered at the rear of the head
- o. Pulls the lower harness straps evenly and simultaneously to the rear to tighten them
- p. Pulls the temple harness straps evenly and simultaneously to the rear to tighten them
- q. Pulls the top harness straps evenly and simultaneously to the rear to tighten them
- r. Performs user seal check:
  - 1) Checks the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with his/her bare hand, and inhales slowly (not deeply), holding his/her breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjusts or re-dons the facepiece.
  - 2) Checks the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of his/her hand, and exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keeps the low-pressure hose sealed, presses facepiece against his/her face, and exhales to free the valve.
    - b) Use caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.

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- s. Connects the low-pressure hose to the regulator. If the unit has a donning switch, turns it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, opens the mainline valve.
- t. Checks for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. He/she should be able to feel air moving past his/her fingers. If he/she cannot feel air movement, removes the unit and has it checked.
- u. Activate PASS, if not integral part of SCBA.

**6. Donning from a Seat-Mount in route**

- a. Checks the air cylinder gauge to ensure the cylinder is full prior to response, if possible
- b. Opens the cylinder valve slowly and listens for the audible alarm as the system pressurizes.
- c. Fully opens the cylinder valve after the alarm sounds.
  - 1) If the audible alarm does not sound, or if it sounds but does not stop, places the unit out of service by tagging it and notifying an officer; uses another unit.
- d. Checks the regulator gauge and cylinder gauge to ensure that they read within 100 psi of each other
- e. Places his/her arms through fully extended shoulder straps.
- f. Tightens the shoulder straps
- g. Fastens and adjusts the waist strap until the unit fits snugly. (Be careful not to entangle with apparatus seat belt)
- h. Re-checks shoulder and waist straps when he/she dismount the apparatus.
- i. If the facepiece harness is a web-type, grasps the harness with the thumbs through the straps from the inside, and spreads the straps
- j. Pushes the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece
- k. Centers the chin in the chin cup and positions the facepiece harness so that it is centered at the rear of the head
- l. Pulls the lower harness straps evenly and simultaneously to the rear to tighten them
- m. Pulls the temple harness straps evenly and simultaneously to the rear to tighten them

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- n. Pulls the top harness straps evenly and simultaneously to the rear to tighten them
- o. Performs user seal check:
  - 1) Checks the facepiece seal by exhaling deeply, sealing the end of the low-pressure hose with his/her bare hand, and inhales slowly (not deeply), holding his/her breath for 10 seconds. (Note: Inhaling very quickly will temporarily seal any leak and will give a false sense of a proper seal.).
    - a) If there is evidence of leaking, adjusts or re-dons the facepiece.
  - 2) Checks the exhalation valve by inhaling while sealing the end of the low-pressure hose with the palm of his/her hand, and exhaling.
    - a) If the exhalation escapes at the edges of the facepiece and does not go through the exhalation valve, keeps the low-pressure hose sealed, presses facepiece against his/her face, and exhales to free the valve.
    - b) Uses caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.
- p. Connects the low-pressure hose to the regulator. If the unit has a donning switch, turns it to the PRESSURE, USE or ON position. If the unit does not have a donning switch, opens the mainline valve.
- q. Checks for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. He/she should be able to feel air moving past his/her fingers. If he/she cannot feel air movement, removes the unit and has it checked.
- r. Activates PASS, if not integral part of SCBA

**7. Donning the facepiece with facepiece-mounted regulator**

- a. If the facepiece harness is a web-type, grasp the harness with the thumbs through the straps from the inside, and spread the straps

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- b. Push the top of the facepiece harness up the forehead to remove hair that may be present between the forehead and the sealing surface of the facepiece
- c. Center the chin in the chin cup and position the facepiece harness so that it is centered at the rear of the head
- d. Pull the lower harness straps evenly and simultaneously to the rear to tighten them
- e. Pull the temple harness straps evenly and simultaneously to the rear to tighten them
- f. Pull the top harness straps evenly and simultaneously to the rear to tighten them
- g. If so equipped, checks the regulator to ensure that the gasket is in place around the regulator outlet port
- h. If separated from the facepiece, attaches it by positioning it firmly into the facepiece fitting.
- i. Locks the regulator in place.
- j. Perform user seal check:
  - 1) Check the facepiece seal by exhaling deeply. Makes sure the donning switch is in the "DON" position (positive pressure off). Inhales slowly (not deeply), and holds his/her breath for 10 seconds. The mask should draw up to his/her face. Listens for the sound of airflow. There should be no sound and no inward leakage through the exhalation valve or around the facepiece.
    - a) If there is evidence of leaking, adjusts or re-dons the facepiece.
  - 2) Checks the exhalation valve. As he/she exhales, make sure that the exhalation goes through the exhalation valve and not to the edges of the facepiece.
    - a) If the exhalation does not go through the valve, the valve may be stuck. To free it, presses the facepiece against the sides of his/her face and exhales to free the valve.
    - b) Uses caution when exhaling against a sealed facepiece in order to prevent discomfort and possible damage to the inner ear from exhaling forcefully.

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- k. Checks for positive pressure by gently breaking the facepiece seal by inserting two fingers under the edge of the facepiece. He/she should be able to feel air moving past his/her fingers. If he/she cannot feel air movement, removes the unit from service and has it checked.

**B. Doffing of SCBA according to manufacturer's recommendations. 2-4.12.2**

**1. With Harness Mounted Regulator**

- a. Closes the mainline valve.
- b. If the unit has a donning switch, makes sure that it is in donning mode.
- c. Disconnects the low-pressure hose from the regulator.
- d. Takes off the helmet, or loosens and pushes it and the hood, back off the head.
- e. Loosens the facepiece harness strap buckles.
- f. Takes off the facepiece and extends the harness straps fully.
- g. Unbuckles the waist belt and fully extends the adjustment.
- h. Disconnects the chest buckle if the unit has a chest strap.
- i. Leans forward
- j. Releases the shoulder strap buckles and holds them open while fully extending the straps.
- k. Grasp the shoulder straps firmly with the respective hands, slips the shoulder strap from the shoulder opposite the regulator, and removes the arm from the shoulder strap.
- l. Grasps the regulator with the free hand and allows the other strap to slide off the shoulder.
- m. Lowers the SCBA to the ground making sure he/she does not drop the regulator or allows it to strike anything.
- n. Closes the cylinder valve.
- o. Relieves the excess pressure from the regulator following manufacturer's recommendations.
- p. Turn off PASS device.

**2. With Facepiece Mounted Regulator**

- a. Takes off the helmet, or loosens and pushes it and the hood, back off his/her head.
- b. If the unit has a donning switch, makes sure that it is in donning mode.
- c. Depending upon the make of SCBA and manufacturer's instructions, disconnects the regulator from the facepiece.
- d. Loosens the facepiece harness strap buckles.

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- e. Unbuckles the waist belt and fully extends the adjustment.
- f. Disconnect the chest buckle, if the unit has a chest strap.
- g. If the unit is so equipped, attaches the regulator to the harness clip, or control the regulator by holding it while performing the next steps.
- h. Leans forward.
- i. Releases the shoulder straps buckles and holds them open while fully extending the straps.
- j. Grasps the shoulder straps firmly with the respective hands, slips off the shoulder strap from the shoulder opposite the regulator, and removes the arm from the shoulder strap.
- k. Grasps the regulator with the free hand and allows the other strap to slide off the shoulder.
- l. Lowers the SCBA to the ground making sure he/she do not drop the regulator or allow it to strike anything.
- m. Closes the cylinder valve.
- n. Relieves the excess pressure from the regulator following manufacturer's recommendations.
- o. Turns off PASS device
- m. Lower the SCBA to the ground making sure you do not drop the regulator or allow it to strike anything.
- n. Close the cylinder valve.
- o. Relieve the excess pressure from the regulator following manufacturer's recommendations.
- p. Turn off PASS device.

**XIII. Demonstrate that the SCBA is in a safe condition for immediate use. 2-4-13 (3-7.10)**

- A. Periodic inspection and care
  - 1. Checks the facepiece
  - 2. Checks the low –pressure hose
  - 3. Checks the exhalation valve by inhaling slowly with the thumb or palm over the end of the hose connection and then exhales slowly.
  - 4. Connects the low pressure hose to the regulator and checks the performance of the regulator, by inhaling deeply and quickly, checking to make sure that the regulator supplies a full flow.



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**XIV. Demonstrate and document cleaning and sanitizing SCBA components. 2-4.14 (3-5.3)**

- A. Cleans and Sanitizes – SCBA Components
  - 1. Immediately after use.
  - 2. Per manufacturer's recommendation.
    - a. Selects proper cleaning solutions and cleaning equipment
    - b. Completes cleaning and sanitizing properly
  - 3. Properly documents cleaning and sanitizing per departmental SOP.

**XV. Demonstrate the daily inspection procedures for the main components of SCBA according to the manufacturer's recommendations. 2-4.15 (3-5.3(b))**

- A. Daily Inspection Procedures
  - 1. Checks for full cylinder (minimum of 90%)
  - 2. Checks all gauges for proper operation (should register within 100 psi of each other.)
  - 3. Checks low-pressure/quarter service alarm for function
  - 4. Checks all hose connections (tight, not leaking)
  - 5. Checks facepiece for cleanliness and operation.
  - 6. Checks straps and harness for condition and insures they are fully extended.
  - 7. Operates bypass and mainline valves.
    - a. Bypass valve must be returned to closed position after testing.

**XVI. Demonstrate the proper procedure for recharging air cylinders used by the fire department according to manufacturer's recommendations. 2-4.16 (3-5.3(b))**

- A. Filling cylinders from a cascade system
  - 1. Checks the hydrostatic test date for compliance with standards.
  - 2. Inspects the SCBA cylinder for damage such as deep nicks, cuts, gouges, or discoloration from heat.
  - 3. Place the SCBA cylinder in a fragment proof charging station.
  - 4. Connects the charging hose to the cylinder.
  - 5. If the charging hose has a bleed valve, makes sure that the bleed valve is closed.
  - 6. Opens the SCBA cylinder valve.

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7. Opens the valve at the charging hose, at the cascade system manifold, or the valves at both locations, if the system is so equipped. (Note: Some cascade systems may have a valve at the charging hose, at the manifold, or at both places).
  8. Opens the valve of the cascade cylinder that has the least pressure, but that has more pressure than the SCBA cylinder.
  9. Adjusts the airflow from the cascade so the cylinder gauge needle rises slowly by about 300 to 600 psi per minute.
  10. When the pressures of the SCBA and the cascade cylinder equalize, closes the cascade cylinder valve.
  11. If the SCBA cylinder is not yet fully charged, repeats steps 8 through 10 using the cascade cylinder with the next highest pressure.
  12. Repeats Steps 8 through 10 until the SCBA cylinder is fully charged.
  13. Closes the valve or valves at the cascade system manifold and/or charging line, if the system is so equipped.
  14. Opens the hose bleed valve and bleeds off excess pressure between the cylinder valve and the valve on the charging hose. (Caution: Failure to do so could result in O-ring damage.)
  15. Disconnects the charging hose from the SCBA cylinder.
  16. Removes the SCBA cylinder from the charging stand and returns the cylinder to proper storage.
- B. Filling from a compressor/purifier.
1. Checks the hydrostatic test date.
  2. Inspects the SCBA cylinder for damage such as deep nicks, cuts, gouges, or discoloration from heat.
  3. Places the SCBA cylinder in a fragment proof charging station.
  4. Connects the charging hose to the cylinder.
  5. Makes sure that the bleed valve is closed.
  6. Opens the SCBA cylinder valve.
  7. Sets the cylinder pressure adjustment on the compressor (if applicable) to the desired full cylinder pressure. (Note: If there is no cylinder pressure adjustment, watches the pressure gauge on the cylinder during charging to determine when it is full.)
  8. Opens the fill valve on the compressor/purifier unit.
  9. Adjusts the airflow (300 to 600 psi) to avoid excessive heating of the cylinder.
  10. When the cylinder is full, closes the fill valve on the compressor/purifier.
  11. Closes the SCBA cylinder valve.

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12. Opens the hose bleed valve and bleeds off excess pressure between the cylinder valve and the valve on the charging hose.
13. Disconnects the charging hose from the SCBA cylinder.
14. Removes the SCBA cylinder from the charging stand and return the cylinder to proper storage.

**XVII. Demonstrate the use of all types of SCBA used by the fire department in conditions of obscured visibility. 2-4.17 (3-3.1(b), 3-3.4(b)).**

- A. Enters area crawling
- B. Operates in a team of at least two, keeping in contact with other team members.
- C. Has some sort of guideline that will guide them back to the point of entrance, if necessary.
- D. Proceeds to wall and follows it noting doors, and/or windows as they are found.

**XVIII. Demonstrate the following emergency procedures to be used in the event of SCBA failure: 2-4.18 (3-3.1(b), 3-3.4(b))**

**A. Use of the emergency by-pass or purge valve 2-4.18.1**

1. In the event of a regulator malfunction, turns off mainline valve
2. Opens the by-pass or purge valve
3. Closes the by-pass valve after each breath and then opens the valve when the next breath is needed.
4. Advises partner of regulator malfunction and exits to a non-toxic atmosphere together
5. Removes the unit from service and has it checked

**B. Conservation of air 2-4.18.2**

1. Always practices controlled breathing when using SCBA
2. When air supply is low, practices skip breathing
3. Skip breathing is an emergency breathing technique used to extend the use of remaining air supply
4. Inhales (as in regular breathing), holds breath as long as it would take to exhale, then inhales once again before exhaling
5. Takes normal breaths and exhales slowly to keep carbon dioxide in the lungs at the proper balance
6. This is an emergency technique: Informs partner of low air supply and exits to a non-toxic atmosphere together

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**C. Breathing from the breathing tube or regulator 2-4.18.3**

1. This technique is used in the event of a facepiece failure
2. Breathes directly from the low-pressure hose (after disconnecting it from the facepiece) or the regulator
3. Holds the hose or regulator opening close to mouth
4. Avoids breathing in fire gases when inhaling
5. This is an **extreme** emergency technique; informs partner and exits to a non-toxic atmosphere together **immediately**

**XIX. Demonstrate techniques for maximizing the air capacity of a SCBA under work conditions. 2-4.19 (3-3.1(b), 3-3.4(b))**

- A. Uses the provided SCBA in accordance with instructions and training.
- B. Knows the SCBA protection limits and safety.
- C. Knows air supply duration.
- D. Calculates a point of no return.
- E. Ensures proper facepiece fit.
- F. Follows basic safety guidelines:
  1. Before entering a hazardous atmosphere, dons and checks the unit for operation.
  2. Always works in pairs.
  3. Stays in contact with a wall, hoseline, lifeline/guideline or partner(s).
  4. Works to control breathing.
  5. Is extremely cautious if forced to use the bypass valve.
  6. Does not take off the facepiece.
  7. Reports any malfunctions or apparent damage.
- G. Protects the SCBA from damage
- H. Inspects and maintains SCBA in accordance with department policy.

**XX. Demonstrate air cylinder exchange while SCBA is being worn by a firefighter according to procedures discussed in class. 2-4.20 (3-3.1(b), 3-3.4(b))**

- A. Has other firefighter kneel or bend over so cylinder can be changed.
- B. Obtains a full air cylinder and place it nearby.
- C. Closes the cylinder valve.
- D. Has other firefighter release the pressure from the high-pressure hose following manufacturer's recommendation.
- E. Disconnects the high pressure hose from the cylinder and places it so dirt or other foreign matter will not get in it.
- F. Releases the clamp and remove the empty bottle.

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- G. Places new cylinder in backpack, properly positioning the outlet.
- H. Locks the cylinder in place.
- I. Checks the cylinder valve opening and the high-pressure hose fitting for debris and the condition of the O-ring.
- J. Clears any debris from the cylinder valve opening by quickly opening and closing the cylinder valve or by wiping debris away.
- K. If the O-ring is distorted or damaged, replaces it.
- L. Connects the high pressure hose to the cylinder valve opening and properly tightens it.
- M. Opens the cylinder valve and checks the gauges on the cylinder and regulator.

**XXI. Demonstrate air cylinder exchange while SCBA is NOT being worn by a firefighter according to procedures discussed in class. 2-4.21 (3-3.1(b), 3-3.4(b))**

- A. Doffs the unit following proper procedures.
- B. Obtains a full air cylinder and places it near unit.
- C. Closes the cylinder valve.
- D. Releases pressure from the high-pressure hose following manufacturer's recommendations.
- E. Disconnects the high pressure hose from the cylinder and places it so dirt and other foreign matter will not get in it.
- F. Releases the clamp and removes the empty bottle.
- G. Places new cylinder in backpack, properly positioning the outlet.
- H. Locks the cylinder in place.
- I. Checks the cylinder valve opening and the high-pressure hose fitting for debris and the condition of the O-ring.
- J. Clears any debris from the cylinder valve opening by quickly opening and closing the cylinder valve or by wiping debris away.
- K. If the O-ring is distorted or damaged, replaces it.
- L. Connects the high pressure hose to the cylinder valve opening and properly tightens it.
- M. Opens the cylinder valve and checks gauges on the cylinder and the regulator.

**Firefighter II, Mod A**  
**Self Contained Breathing Apparatus**

**XXII. Demonstrate rescue procedures for the following without compromising the rescuer's respiratory protection: 2-14.22 (3-3.1(b), 3-3.4(b))**

- A. A firefighter with functioning respiratory protection **2-4.22.1**
  - 1. Determines if the SCBA is functioning.
  - 2. Rolls the firefighter onto the side, ensuring that the air supply is not compromised.
  - 3. Verifies that the SCBA is securely fastened on the firefighter.
  - 4. Grasps the shoulder straps of the firefighter's SCBA and drags him from the area.
  
- B. A firefighter without functioning respiratory protection. **2-4.22.2**
  - 1. Determines if the SCBA is functioning.
  - 2. If not, disconnects the lower pressure tube and places inside the firefighter's coat or removes the regulator from the facepiece, leaving the facepiece in place.
  - 3. Rolls the firefighter onto the side.
  - 4. Verifies that the SCBA is securely fastened on the firefighter.
  - 5. Grasps the shoulder straps of the firefighter's SCBA and drags him from the area.
  
- C. An individual without functioning respiratory protection **2-4.22.3**
  - 1. **NEVER** remove your facepiece to share your SCBA with a victim.
  - 2. Do not put yourself in a position that a conscious victim can pull your facepiece from your face in an attempt to get air.
  - 3. If the civilian victim is conscious, lead them to the nearest exit as quickly as possible. Remember that the victim does not have protective clothing and may need to be taken out via a safer route than you entered.
  - 4. If the victim is unconscious, remove the victim as quickly as possible using any of the various drags or carries.

**Firefighter II, Mod A**  
**Self Contained Breathing Apparatus**

**XXIII. Demonstrate the use of SCBA in exiting through areas with restricted openings in emergency situations. 2-4.23 (3-3.1(b), 3-3.9(b), 3-3.10(b))**

- A. SCBA should only be removed as a last resort under emergency conditions.
- B. Remove or loosen only those parts of the SCBA unit necessary to negotiate the restricted opening.
- C. Never remove the face piece to reduce the profile.
- D. Loosen straps and rotate the SCBA unit under the arm along the rib cage.
- E. As a last resort, perform the “full escape” by removing the harness assembly and holding the SCBA unit in front of you.
- F. Always maintain contact with the SCBA unit
- G. Hold onto the shoulder straps and regulator assembly or regulator on a waist mounted unit.
- H. Maintain control of the unit. Do not move it away or allow the face piece to be pulled away.
- I. Once through the restricted passage, re-don the SCBA.